CLAIMS

1. A method for processing a received electromagnetic signal in the microwave range, the signal comprising at least a first and a second carrier wave at respective first and second carrier frequencies, comprising :
- splitting the received signal into a first (120) and a second (125) branch,
- a first shifting of the carrier frequency of the signal in each of the branches by respective first frequency shifts, (126, 127),
- filtering the signal in the first and the second branch in respective first filters (131, 132) ,
- a second shifting of the carrier frequency of the signal in each of the branches by respective second frequency shifts, (137, 136),
which method is characterized in that
- there is a first frequency distance between the first frequency shifts, such that after the first shift, the first carrier wave in the first branch has essentially the same center frequency as the second carrier wave in the second branch,
- the first filters have essentially the same filter characteristics,
so that the signal in each branch after the first filter comprises only one of said first or second carrier wave, but at essentially the same center frequency.

2. The method of claim 1, according to which the second frequency shifting is carried out by different shifts in each of the branches, the difference between the shifts in the branches corresponding to a desired frequency separation between the first and the second carrier waves.

3. The method of any of claims 1 or 2, according to which the signals in the two branches are combined (140) after the second frequency shifts, and then filtered (143) and further processed.

4. A device (100) for processing a received electromagnetic signal in the microwave range, the signal comprising at least a first and a second carrier

wave at respective first and second carrier frequencies, the device comprising :

- means for splitting the received signal into a first and a second branch,
- means (126, 127) for a first shifting of the carrier frequency of the signal in each of the branches by respective first frequency shifts,
- means (131, 132) for a first filtering of the signal in the first and the second branch respectively,
- means (136, 137) for a second shifting of the carrier frequency of the signal in each of the branches by respective second frequency shifts,

which device is characterized in that

- in the means (126, 127) for the first frequency shifts, there is a first frequency distance between the first frequency shifts, such that after the first shift, the first carrier wave in the first branch has essentially the same center frequency as the second carrier wave in the second branch,
- the means for the first filtering have essentially the same filter characteristics,

so that the signal in each branch after the first filter comprises only one of said first or second carrier wave, but both being placed at essentially the same center frequency.

5. The device (100) of claim 4, in which the means (136, 137) for the second frequency shifting employ different shifts in each of the branches, the difference between the shifts in the branches corresponding to a desired frequency separation between the first and the second carrier waves.

6. The device of any of claims 4 or 5, further comprising means (140) for combining the signals in the two branches after the second frequency shifts, and also means (143, 145, 147) for their filtering and further processing.

7. A method for processing a received electromagnetic signal in the microwave range, the signal comprising at least a first and a second carrier wave at respective first and second carrier frequencies, comprising :

- splitting the received signal into a first and a second branch,
- a first shifting (326 ,327) of the carrier frequency of the signal in each of the branches by respective first frequency shifts,
- filtering the signal in the first and the second branch in respective first filters (331, 332),
- a second shifting of the carrier frequency of the signal in each of the branches by second frequency shifts (337),

which method is characterized in that

- the first filtering in the first and second branch filters out one of the carrier waves in each branch, so that each branch, after the first filter, comprises only one of the carrier waves, and in that
- the second shift is carried out by the same shift amount in both of the branches.

8. The method of claim 7, according to which the signals in the two branches are combined (340) after the second frequency shifts, and then filtered (343) and further processed (345, 347) .

9. A device (300) for processing a received electromagnetic signal in the microwave range, the signal comprising at least a first and a second carrier wave at respective first and second carrier frequencies, said device comprising :

- means for splitting the received signal into a first and a second branch,
- means (326, 327) for a first shifting of the carrier frequency of the signal in each of the branches by respective first frequency shifts,
- means (331, 332) for a first filtering of the signal in the first and the second branch respectively,
- means (337) for a second shifting of the carrier frequency of the signal in each of the branches by second frequency shifts,

which device is characterized in that

- the means for the first filtering in the first and second branch filters out one of the carrier waves in each branch, so that each branch, after the first filter, comprises only one of the carrier waves, and in that
- the means for the second shift carries out said second shift by the same shift amount in both of the branches.

10. The device (300) of claim 9, comprising means (340) for combining the signals in the two branches after the second frequency shifts, and then means for their filtering (343) and further processing (345, 347).